Performed By (Print): Chad Bradford

Signature: [signature]

Date: 11-4-14 Time: 0630

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	963	138261	43-68	216855	10/3/15	G	G	G	G	α 1 β 118	α 0 - 3 β 117 - 175	α 14505 β 20699	α 12869 - 19304 β 15724 - 23586
2360	964	245785	43-68	147405	10/3/15	G	G	G	G	α 1 β 99	α 0 - 3 β 79 - 119	α 11573 β 18361	α 10400 -15600 β 15388 - 23083
2360	955	274950	43-93	293951	9/23/15	G	G	G	G	α 2 β 177	α 0 - 3 β 171 - 257	α 12514 β 12486	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	G	G	G	G	α 0 β 183	α 0 - 3 β 173 - 259	α 11754 β 13535	α 9950 - 14926 β 10729 - 16093

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	G	G	G	G	4432	3110 - 5064	162978	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	G	G	G	G	4607	3167 - 4751	187735	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	G	G	G	G	5 uR/hr	N/A	1500 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
N/A										

CD 11-4

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
N/A													

CD 11-4

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09
Source Information:	γ	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µCi	Creation Day 6-1-2004
** Source Information:	α	Isotope	ID	Half-life	Activity	Creation Day
** Source Information:	γ	Isotope	ID	Half-life	Activity	Creation Day

(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)

OOS = Out of service (See Notes)

Note: _____

Reviewed By: [signature] Date: 11/4/14

Performed By (Print): Blake Willett

Signature: [signature]

Date: 11/3/14 Time: 0630

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	963	138261	43-68	216855	10/3/15	G	Y	G	G	α 1 β 156	α 0 - 3 β 117 - 175	α 14095 β 20689	α 12869 - 19304 β 15724 - 23586
2360	964	245785	43-68	147405	10/3/15	G	Y	G	G	α 0 β 100	α 0 - 3 β 79 - 119	α 11840 β 18133	α 10400 -15600 β 15388 - 23083
2360	955	274950	43-93	293951	9/23/15	G	Y	G	G	α 2 β 171	α 0 - 3 β 171 - 257	α 11871 β 12756	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	G	Y	G	G	α 1 β 180	α 0 - 3 β 173 - 259	α 11146 β 13483	α 9950 - 14926 β 10729 - 16093

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	G	Y	G	G	4259	3110 - 5064	167304	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	G	Y	G	G	4715	3167 - 4751	187921	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	G	Y	G	G	5 uR/hr	N/A	1656 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
					N A	11/3/14				

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
							A						
							N	11/3/14					

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	γ	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µCi	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** Source Information:	α	Isotope	ID	Half-life	Activity	Creation Day	
** Source Information:	γ	Isotope	ID	Half-life	Activity	Creation Day	

Note: _____

Reviewed By: [signature] Date: 11/3/14

Performed By (Print): Blake Willett

Signature: Blake Willett

Date: 10/31/14 Time: 0630

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	963	138261	43-68	216855	10/3/15	G	Y	G	G	α 0 β 173	α 0 - 3 β 117 - 175	α 15394 β 19859	α 12869 - 19304 β 15724 - 23586
2360	964	245785	43-68	147405	10/3/15	G	Y	G	G	α 0 β 98	α 0 - 3 β 79 - 119	α 11783 β 18783	α 10400 -15600 β 15388 - 23083
2360	955	274950	43-93	293951	9/23/15	G	Y	G	G	α 0 β 192	α 0 - 3 β 171 - 257	α 12372 β 12534	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	G	Y	G	G	α 2 β 198	α 0 - 3 β 173 - 259	α 11592 β 13398	α 9950 - 14926 β 10729 - 16093

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	G	Y	G	G	4375	3110 - 5064	165465	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	G	Y	G	G	4742	3167 - 4751	181698	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	G	Y	G	G	Y uR/hr	N/A	1700 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
					A			10-31-14 B.V.		

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
								A					
									10/31/14 B.V.				

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	y	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µCi	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** **Source Information:**	α	Isotope	ID	Half-life	Activity	Creation Day	
** **Source Information:**	y	Isotope	ID	Half-life	Activity	Creation Day	

Note: _____

Reviewed By: _____ Date: 10/31/14

Performed By (Print): Blake Willett

Signature: Blake Willett

Date: 10-30-14 Time: 0630

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	963	138261	43-68	216855	10/3/15	G	Y	G	G	α 0 β 168	α 0 - 3 β 117 - 175	α 1564 β 20373	α 12869 - 19304 β 15724 - 23586
2360	964	245785	43-68	147405	10/3/15	G	Y	G	G	α 2 β 112	α 0 - 3 β 79 - 119	α 1628 β 18524	α 10400 -15600 β 15388 - 23083
2360	955	274950	43-93	293951	9/23/15	G	Y	G	G	α 0 β 181	α 0 - 3 β 171 - 257	α 1206 β 12706	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	G	Y	G	G	α 1 β 177	α 0 - 3 β 173 - 259	α 1583 β 13326	α 9950 - 14926 β 10729 - 16093

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	G	Y	G	G	4233	3110 - 5064	174212	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	G	Y	G	G	4621	3167 - 4751	185374	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	G	Y	G	G	5 uR/hr	N/A	1750 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
					N	A	103014 B.W.			

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
								N	A	103014 B.W.			

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	y	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µci	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** **Source Information:**	α	Isotope	ID	Half-life	Activity	Creation Day	
** **Source Information:**	y	Isotope	ID	Half-life	Activity	Creation Day	

Note: _____

Reviewed By: _____ Date: 10/30/14

Performed By (Print): Chad Broadfield

Signature: [signature]

Date: 10-29-14 Time: 0630

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	963	138261	43-68	216855	10/3/15	G	G	G	G	α 0 β 129	α 0 - 3 β 117 - 175	α 15409 β 20471	α 12869 - 19304 β 15724 - 23586
2360	964	245785	43-68	147405	10/3/15	G	G	G	G	α 0 β 88	α 0 - 3 β 79 - 119	α 11724 β 18264	α 10400 -15600 β 15388 - 23083
2360	955	274950	43-93	293951	9/23/15	G	G	G	G	α 2 β 200	α 0 - 3 β 171 - 257	α 12167 β 12256	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	G	G	G	G	α 0 β 174	α 0 - 3 β 173 - 259	α 11173 β 13434	α 9950 - 14926 β 10729 - 16093

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	G	G	G	G	4231	3110 - 5064	166841	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	G	G	G	G	4421	3167 - 4751	180566	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	G	G	G	G	4 uR/hr	N/A	1600 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
N/A										

CB 10.29

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
N/A													

CB 10.29

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	γ	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 uCi	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** Source Information:	α	Isotope	ID	Half-life	Activity	Creation Day	
** Source Information:	γ	Isotope	ID	Half-life	Activity	Creation Day	

Note: _____

Reviewed By: [signature] Date: 10/29/14

Performed By (Print): Blake Willett

Signature: Blake Willett

Date: 10-28-14 Time: 0630

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	963	138261	43-68	216855	10/3/15	G	Y	G	G	α 1 β 152	α 0 - 3 β 117 - 175	α 14735 β 20479	α 12869 - 19304 β 15724 - 23586
2360	964	245785	43-68	147405	10/3/15	G	Y	G	G	α 2 β 88	α 0 - 3 β 79 - 119	α 11568 β 18726	α 10400 -15600 β 15388 - 23083
2360	955	274950	43-93	293951	9/23/15	G	Y	G	G	α 0 β 182	α 0 - 3 β 171 - 257	α 12342 β 12388	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	G	Y	G	G	α 1 β 192	α 0 - 3 β 173 - 259	α 11440 β 13529	α 9950 - 14926 β 10729 - 16093

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	G	Y	G	G	4164	3110 - 5064	167360	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	G	Y	G	G	4626	3167 - 4751	183713	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	G	Y	G	G	Y uR/hr	N/A	1750 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
					10.28.14 BW.					

CB 10-28-14

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
								A					
								N	10.28.14 BW.				

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09
Source Information:	γ	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µCi	Creation Day 6-1-2004
** **Source Information:**	α	Isotope	ID	Half-life	Activity	Creation Day
** **Source Information:**	γ	Isotope	ID	Half-life	Activity	Creation Day

(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)

OOS = Out of service (See Notes)

Note: _____

Reviewed By: _____ Date: 10/28/14

Performed By (Print): Blake Willett

Signature: Blake Willett

Date: 102714 Time: 0630

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	963	138261	43-68	216855	10/3/15	G	Y	G	G	α 0 β 143	α 0 - 3 β 117 - 175	α 5014 β 20612	α 12869 - 19304 β 15724 - 23586
2360	964	245785	43-68	147405	10/3/15	G	Y	G	G	α 0 β 91	α 0 - 3 β 79 - 119	α 11654 β 19226	α 10400 -15600 β 15388 - 23083
2360	955	274950	43-93	293951	9/23/15	G	Y	G	G	α 3 β 186	α 0 - 3 β 171 - 257	α 12218 β 12664	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	G	Y	G	G	α 1 β 181	α 0 - 3 β 173 - 259	α 11669 β 13397	α 9950 - 14926 β 10729 - 16093

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	G	Y	G	G	4237	3110 - 5064	170279	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	G	Y	G	G	4285	3167 - 4751	185620	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	G	Y	G	G	5 uR/hr	N/A	1650 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
					N/A			102714 B.V.		

CB 10.27

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
								N/A		102714 B.V.			

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	γ	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µCi	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** Source Information:	α	Isotope	ID	Half-life	Activity	Creation Day	
** Source Information:	γ	Isotope	ID	Half-life	Activity	Creation Day	

Note: _____

Reviewed By: _____ Date: 10/27/14

Performed By (Print): Blake Willett

Signature: Blake Willett

Date: 102414 Time: 0635

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	963	138261	43-68	216855	10/3/15	G	Y	G	G	α 0 β 156	α 0 - 3 β 117 - 175	α 14952 β 20376	α 12869 - 19304 β 15724 - 23586
2360	964	245785	43-68	147405	10/3/15	G	Y	G	G	α 0 β 112	α 0 - 3 β 79 - 119	α 12223 β 18905	α 10400 -15600 β 15388 - 23083
2360	955	274950	43-93	293951	9/23/15	G	Y	G	G	α 1 β 207	α 0 - 3 β 171 - 257	α 12464 β 11948	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	G	Y	G	G	α 0 β 179	α 0 - 3 β 173 - 259	α 12575 β 13178	α 9950 - 14926 β 10729 - 16093

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	G	Y	G	G	4093	3110 - 5064	165580	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	G	Y	G	G	4275	3167 - 4751	183106	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	G	Y	G	G	4 uR/hr	N/A	1700 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
						A	102414	BW		

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
						A		102414 BW					

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	γ	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µCi	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** Source Information:	α	Isotope	ID	Half-life	Activity	Creation Day	
** Source Information:	γ	Isotope	ID	Half-life	Activity	Creation Day	

Note: _____

Reviewed By: _____ Date: 10/24/14

Performed By (Print): Blake Willett

Signature: Blake Willett

Date: 102314 Time: 0630

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	963	138261	43-68	216855	10/3/15	G	Y	G	G	α 0 β 157	α 0 - 3 β 117 - 175	α 15544 β 20540	α 12869 - 19304 β 15724 - 23586
2360	964	245785	43-68	147405	10/3/15	G	Y	G	G	α 3 β 97	α 0 - 3 β 79 - 119	α 11464 β 18628	α 10400 -15600 β 15388 - 23083
2360	955	274950	43-93	293951	9/23/15	G	Y	G	G	α 2 β 178	α 0 - 3 β 171 - 257	α 12409 β 12713	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	G	Y	G	G	α 1 β 184	α 0 - 3 β 173 - 259	α 11705 β 13214	α 9950 - 14926 β 10729 - 16093

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	G	Y	G	G	4059	3110 - 5064	167794	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	G	Y	G	G	4390	3167 - 4751	19195 1	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	G	Y	G	G	5 uR/hr	N/A	1600 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
				N	A				102314 BW	

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
								N	A		102314 BW		

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	γ	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µci	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** Source Information:	α	Isotope	ID	Half-life	Activity	Creation Day	
** Source Information:	γ	Isotope	ID	Half-life	Activity	Creation Day	

Note: _____

Reviewed By: _____ Date: 10/23/14

Performed By (Print): Blake Willett

Signature: Blake Willett

Date: 102214 Time: 0630

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	963	138261	43-68	216855	10/3/15	G	Y	G	G	α 1 β 155	α 0 - 3 β 117 - 175	α 14946 β 20171	α 12869 - 19304 β 15724 - 23586
2360	964	245785	43-68	147405	10/3/15	G	Y	G	G	α 1 β 117	α 0 - 3 β 79 - 119	α ~~14946~~ β 18507	α 10400 -15600 β 15388 - 23083
2360	955	274950	43-93	293951	9/23/15	G	Y	G	G	α 1 β 172	α 0 - 3 β 171 - 257	α 12814 β 12419	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	G	Y	G	G	α 0 β 193	α 0 - 3 β 173 - 259	α 11785 β 13334	α 9950 - 14926 β 10729 - 16093

911979

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	G	Y	G	G	4328	3110 - 5064	171342	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	G	Y	G	G	4613	3167 - 4751	184275	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	G	Y	G	G	4 uR/hr	N/A	1600 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
							N	4	102214 B.W.	

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
							N	A	102214 B.W.				

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	y	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µCi	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** Source Information:	α	Isotope	ID	Half-life	Activity	Creation Day	
** Source Information:	y	Isotope	ID	Half-life	Activity	Creation Day	

Note: _____

Reviewed By: _____ Date: 10/22/14

Performed By (Print): Chad Bradford

Signature: CBB

Date: 10-21-14 Time: 0630

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	963	138261	43-68	216855	10/3/15	6	6	6	6	α 1 β 171	α 0 - 3 β 117 - 175	α 14789 β 22000	α 12869 - 19304 β 15724 - 23586
2360	964	245785	43-68	147405	10/3/15	6	6	6	6	α 1 β 85	α 0 - 3 β 79 - 119	α 11609 β 18736	α 10400 -15600 β 15388 - 23083
2360	955	274950	43-93	293951	9/23/15	6	6	6	6	α 3 β 182	α 0 - 3 β 171 - 257	α 12050 β 12671	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	6	6	6	6	α 1 β 204	α 0 - 3 β 173 - 259	α 11119 β 13534	α 9950 - 14926 β 10729 - 16093

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	6	6	6	6	4100	3110 - 5064	166442	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	6	6	6	6	4358	3167 - 4751	184329	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	6	6	6	6	4 uR/hr	N/A	1600 uR/hr	1264 uR/hr 1896 uR/hr

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	γ	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µCi	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** **Source Information:**	α	Isotope	ID	Half-life	Activity	Creation Day	
** **Source Information:**	γ	Isotope	ID	Half-life	Activity	Creation Day	

Note: _____

Reviewed By: _____ Date: 10/21/14

Performed By (Print): Chad Bradshaw

Signature: [signature]

Date: 10-20-14 Time: 0630

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	963	138261	43-68	216855	10/3/15	G	G	G	G	α 0 β 151	α 0 - 3 β 117 - 175	α 15127 β 20091	α 12869 - 19304 β 15724 - 23586
2360	964	245785	43-68	147405	10/3/15	G	G	G	G	α 1 β 104	α 0 - 3 β 79 - 119	α 12334 β 19267	α 10400 -15600 β 15388 - 23083
2360	955	274950	43-93	293951	9/23/15	G	G	G	G	α 0 β 222	α 0 - 3 β 171 - 257	α 12094 β 12690	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	G	G	G	G	α 0 β 192	α 0 - 3 β 173 - 259	α 11418 β 13547	α 9950 - 14926 β 10729 - 16093

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	G	G	G	G	3916	3110 - 5064	167396	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	G	G	G	G	4401	3167 - 4751	179719	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	G	G	G	G	4 uR/hr	N/A	1600 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
N/A										

CP 10-20

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
N/A													

CB 10-20

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	γ	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 uCi	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** Source Information:	α	Isotope	ID	Half-life	Activity	Creation Day	
** Source Information:	γ	Isotope	ID	Half-life	Activity	Creation Day	

Note: _____

Reviewed By: [signature] Date: 10/20/14

Performed By (Print): Blake Willett

Signature: Blake Willett

Date: 10-17-14 Time: 0630

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	963	138261	43-68	216855	10/3/15	G	Y	G	G	α 0 β 138	α 0-3 β 117 - 175	α 15190 β 20227	α 12869 - 19304 β 15724 - 23586
2360	964	245785	43-68	147405	10/3/15	G	Y	G	G	α 0 β 89	α 0-3 β 79 - 119	α 11795 β 18555	α 10400 -15600 β 15388 - 23083
2360	955	274950	43-93	293951	9/23/15	G	Y	G	G	α 1 β 184	α 0-3 β 171 - 257	α 12481 β 12437	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	G	Y	G	G	α 1 β 190	α 0-3 β 173 - 259	α 11479 β 13463	α 9950 - 14926 β 10729 - 16093

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	G	Y	G	G	4265	3110 - 5064	171390	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	G	Y	G	G	4443	3167 - 4751	183032	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	G	Y	G	G	4 uR/hr	N/A	1600 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
						N	A			

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
								N A					

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	γ	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µCi	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** Source Information:	α	Isotope	ID	Half-life	Activity	Creation Day	
** Source Information:	γ	Isotope	ID	Half-life	Activity	Creation Day	

Note: _____

Reviewed By: _____ Date: 10/17/14

Performed By (Print): Blake Willett

Signature: Blake Willett

Date: 10-16-14 Time: 0680

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	963	138261	43-68	216855	10/3/15	G	Y	G	G	α 1 β 139	α 0 - 3 β 117 - 175	α ~~18594~~ β 20283	α 12869 - 19304 β 15724 - 23586
2360	964	245785	43-68	147405	10/3/15	G	Y	G	G	α 0 β 94	α 0 - 3 β 79 - 119	α 1778 β ~~15050~~ 18594	α 10400 -15600 β 15388 - 23083
2360	955	274950	43-93	293951	9/23/15	G	Y	G	G	α 0 β 189	α 0 - 3 β 171 - 257	α 12566 β 12405	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	G	Y	G	G	α 0 β 199	α 0 - 3 β 173 - 259	α 11796 β 13575	α 9950 - 14926 β 10729 - 16093

15050

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	G	Y	G	G	4297	3110 - 5064	167591	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	G	Y	G	G	4478	3167 - 4751	185855	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	G	Y	G	G	4 uR/hr	N/A	1500 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
				A				10614	B.W.	

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
								A					
											10614 BW.		

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	γ	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µCi	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** **Source Information:**	α	Isotope	ID	Half-life	Activity	Creation Day	
** **Source Information:**	γ	Isotope	ID	Half-life	Activity	Creation Day	

Note: _____

Reviewed By: _____ Date: 10/16/14

Performed By (Print): Blake W. Willett

Signature: Blake Willett

Date: 101514 Time: 0620

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	876	234860	43-68	216388	10/25/14	~~NUOOS~~	~~Y~~	~~G~~	~~G~~	~~α β~~	~~α 0 - 3 β 117 - 175~~	~~α β~~ 101514 B.W.	~~α 10102 - 15153~~ ~~β 13877 - 23846~~
2360	911	177180	43-68	149834	1/30/15	~~NUOOS~~	~~Y~~	~~G~~	~~G~~	~~α β~~	~~α 0 - 3 β 122 - 184~~	~~α β~~ 101514 B.W.	~~α 11239 - 16859~~ ~~β 16196 - 24294~~
2360	955	274950	43-93	293951	9/23/15	G	Y	G	G	α 1 β 186	α 0 - 3 β 171 - 257	α 12649 β 12466	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	G	Y	G	G	α 0 β 212	α 0 - 3 β 173 - 259	α 11302 β 13225	α 9950 - 14926 β 10729 - 16093

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	G	Y	G	G	4102	3110 - 5064	169261	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	G	Y	G	G	4470	3167 - 4751	182556	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	G	Y	G	G	4 uR/hr	N/A	1600 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
						A		101514 B.W.		

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
												101514 BW.	

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	γ	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µci	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** Source Information:	α	Isotope	ID	Half-life	Activity	Creation Day	
** Source Information:	γ	Isotope	ID	Half-life	Activity	Creation Day	

Note: _____

Reviewed By: _____ Date: 10/15/14

Performed By (Print): Chad Bradford

Signature: [signature]

Date: 10-14-14 Time: 0630

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	876	234860	43-68	216388	10/25/14	G	G	G	G	α 2 β 146	α 0 - 3 β 117 - 175	α 14148 β 20311	α 10102 - 15153 β 15877 - 23815
2360	911	177180	43-68	149834	1/30/15	G	G	G	G	α 0 β 137	α 0 - 3 β 122 - 184	α 11837 β 21840	α 11239 -16859 β 16196 - 24294
2360	955	274950	43-93	293951	9/23/15	G	G	G	G	α 3 β 172	α 0 - 3 β 171 - 257	α 11734 β 12427	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	G	G	G	G	α 2 β 173	α 0 - 3 β 173 - 259	α 11660 β 13422	α 9950 - 14926 β 10729 - 16093

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	G	G	G	G	4331	3110 - 5064	167612	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	G	G	G	G	4261	3167 - 4751	188183	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	G	G	G	G	4 uR/hr	N/A	1600 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
N/A										

CB 10-14

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
N/A													

CB 10-14

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	γ	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µci	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** Source Information:	α	Isotope	ID	Half-life	Activity	Creation Day	
** Source Information:	γ	Isotope	ID	Half-life	Activity	Creation Day	

Note: _____

10141 B.V.

Reviewed By: [signature] Date: 10/14/14

Performed By (Print): Blake Willett

Signature: Blake Willett

Date: 10-13-14 Time: 0630

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	876	234860	43-68	216388	10/25/14	G	Y	G	G	α 0 β 155	α 0 - 3 β 117 - 175	α 14176 β 20305	α 10102 - 15153 β 15877 - 23815
2360	911	177180	43-68	149834	1/30/15	G	Y	G	G	α 1 β 133	α 0 - 3 β 122 - 184	α 12050 β 21691	α 11239 -16859 β 16196 - 24294
2360	955	274950	43-93	293951	9/23/15	G	Y	G	G	α 0 β 199	α 0 - 3 β 171 - 257	α 12047 β 12241	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	G	Y	G	G	α 0 β 183	α 0 - 3 β 173 - 259	α 11580 β 13528	α 9950 - 14926 β 10729 - 16093

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	G	Y	G	G	4325	3110 - 5064	166436	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	G	Y	G	G	4526	3167 - 4751	185595	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	G	Y	G	G	4 uR/hr	N/A	1600 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
					N/A		1013 B.V.			

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
								N/A	1013 B.V.				

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	γ	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µci	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** Source Information:	α	Isotope	ID	Half-life	Activity	Creation Day	
** Source Information:	γ	Isotope	ID	Half-life	Activity	Creation Day	

Note: _____

Reviewed By: _____ Date: 10/13/14

Performed By (Print): Chad Bradford

Signature: [signature]

Date: 10-10-14 Time: 0630

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	876	234860	43-68	216388	10/25/14	6	6	6	6	α 1 β 143	α 0 - 3 β 117 - 175	α 13955 β 20122	α 10102 - 15153 β 15877 - 23815
2360	911	177180	43-68	149834	1/30/15	6	6	6	6	α 0 β 124	α 0 - 3 β 122 - 184	α 16591 β 21720	α 11239 -16859 β 16196 - 24294
2360	955	274950	43-93	293951	9/23/15	6	6	6	6	α 0 β 178	α 0 - 3 β 171 - 257	α 12152 β 12179	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	6	6	6	6	α 1 β 190	α 0 - 3 β 173 - 259	α 11562 β 13600	α 9950 - 14926 β 10729 - 16093

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	6	6	6	6	4093	3110 - 5064	164752	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	6	6	6	6	4460	3167 - 4751	180655	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	6	6	6	6	5 uR/hr	N/A	1600 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
N/A										

CB 10-10

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
N/A													

CB 10-10

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	y	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µCi	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** **Source Information:**	α	Isotope	ID	Half-life	Activity	Creation Day	
** **Source Information:**	y	Isotope	ID	Half-life	Activity	Creation Day	

Note: _____

10/10/14 BL.

Reviewed By: [signature] Date: 10/10/14

Performed By (Print): Chad Bradford

Signature: [signature]

Date: 10-9-14 Time: 0630

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	876	234860	43-68	216388	10/25/14	6	6	6	6	α 0 β 143	α 0 - 3 β 117 - 175	α 14039 β 19969	α 10102 - 15153 β 15877 - 23815
2360	911	177180	43-68	149834	1/30/15	~~6~~	~~6~~	~~6~~	~~6~~	α β	α 0 - 3 β 122 - 184	α β	α 11239 -16859 β 16196 - 24294
2360	955	274950	43-93	293951	9/23/15	6	6	6	6	α 0 β 181	α 0 - 3 β 171 - 257	α 11805 β 14506	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	6	6	6	6	α 0 β 182	α 0 - 3 β 173 - 259	α 11819 β 13472	α 9950 - 14926 β 10729 - 16093

NUOOS CB 10-9

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	6	6	6	6	4237	3110 - 5064	167424	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	6	6	6	6	4331	3167 - 4751	173593	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	6	6	6	6	4 uR/hr	N/A	1600 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
N/A										

CB 10-9

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
N/A													

CB 10-9

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	γ	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µCi	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** **Source Information:**	α	Isotope	ID	Half-life	Activity	Creation Day	
** **Source Information:**	γ	Isotope	ID	Half-life	Activity	Creation Day	

Note: _____

Reviewed By: [signature] Date: 10/9/14

Performed By (Print): Chad Bradford

Signature: [signature]

Date: 10-8-14 Time: 0630

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	876	234860	43-68	216388	10/25/14	G	G	G	G	α 0 β 119	α 0 - 3 β 117 - 175	α 14329 β 20346	α 10102 - 15153 β 15877 - 23815
2360	911	177180	43-68	149834	1/30/15	G	G	G	G	α 1 β 124	α 0 - 3 β 122 - 184	α 11333 β 21409	α 11239 -16859 β 16196 - 24294
2360	955	274950	43-93	293951	9/23/15	G	G	G	G	α 0 β 179	α 0 - 3 β 171 - 257	α 11950 β 12387	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	G	G	G	G	α 0 β 176	α 0 - 3 β 173 - 259	α 11705 β 13533	α 9950 - 14926 β 10729 - 16093

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	G	G	G	G	4294	3110 - 5064	162549	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	G	G	G	G	4414	3167 - 4751	170685	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	G	G	G	G	4 uR/hr	N/A	1600 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
N/A										

CB 10.8

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
N/A													

CB 10.8

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	γ	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µci	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** **Source Information:**	α	Isotope	ID	Half-life	Activity	Creation Day	
** **Source Information:**	γ	Isotope	ID	Half-life	Activity	Creation Day	

Note: _____

100814 B.V.

Reviewed By: GC Date: 2/10/15

Performed By (Print): Blake Willett

Signature: Blake Willett

Date: 100714 Time: 0630

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	876	234860	43-68	216388	10/25/14	G	Y	G	G	α 1 β 171	α 0 - 3 β 117 - 175	α 14540 β 20317	α 10102 - 15153 β 15877 - 23815
2360	911	177180	43-68	149834	1/30/15	G	Y	G	G	α 0 β 123	α 0 - 3 β 122 - 184	α 18890 β 21652	α 11239 -16859 β 16196 - 24294
2360	955	274950	43-93	293951	9/23/15	G	Y	G	G	α 0 β 183	α 0 - 3 β 171 - 257	α 11986 β 12416	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	G	Y	G	G	α 1 β 178	α 0 - 3 β 173 - 259	α 11793 β 13397	α 9950 - 14926 β 10729 - 16093

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	G	Y	G	G	4200	3110 - 5064	166204	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	G	Y	G	G	4408	3167 - 4751	181815	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	G	Y	G	G	4 uR/hr	N/A	1500 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
						N/A		100714 BW		

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
							N/A	A			100714 BW		

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	γ	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µci	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** **Source Information:**	α	Isotope	ID	Half-life	Activity	Creation Day	
** **Source Information:**	γ	Isotope	ID	Half-life	Activity	Creation Day	

Note: _____

Reviewed By: George Thomas Date: 10/7/14

Performed By (Print): Chad Bradford

Signature: [signature]

Date: 10.6.14 Time: 0630

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	876	234860	43-68	216388	10/25/14	G	G	G	G	α 1 β 141	α 0 - 3 β 117 - 175	α 14006 β 20161	α 10102 - 15153 β 15877 - 23815
2360	911	177180	43-68	149834	1/30/15	G	G	G	G	α 1 β 142	α 0 - 3 β 122 - 184	α 11397 β 21504	α 11239 -16859 β 16196 - 24294
2360	955	274950	43-93	293951	9/23/15	G	G	G	G	α 3 β 171	α 0 - 3 β 171 - 257	α 12538 β 11680	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	G	G	G	G	α 0 β 200	α 0 - 3 β 173 - 259	α 12445 β 13312	α 9950 - 14926 β 10729 - 16093

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	G	G	G	G	4327	3110 - 5064	169773	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	G	G	G	G	4489	3167 - 4751	184397	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	G	G	G	G	4 uR/hr	N/A	1600 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
N/A										

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
N/A													

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	γ	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µCi	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** **Source Information:**	α	Isotope	ID	Half-life	Activity	Creation Day	
** **Source Information:**	γ	Isotope	ID	Half-life	Activity	Creation Day	

Note: _____

Reviewed By: George Tamosaitis Date: 10/6/14

Performed By (Print): George Economos

Signature: George Economos

Date: 10/3/14 Time: 06:30

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	876	234860	43-68	216388	10/25/14	G	G	G	G	α 1 β 121	α 0 - 3 β 117 - 175	α 14,975 β 21,810	α 10102 - 15153 β 15877 - 23815
2360	911	177180	43-68	149834	1/30/15	G	G	G	G	α 1 β 141	α 0 - 3 β 122 - 184	α 15,180 β 20,035	α 11239 -16859 β 16196 - 24294
2360	955	274950	43-93	293951	9/23/15	G	G	G	G	α 1 β 172	α 0 - 3 β 171 - 257	α 13,496 β 12,251	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	G	G	G	G	α 1 β 178	α 0 - 3 β 173 - 259	α 11,718 β 12,483	α 9950 - 14926 β 10729 - 16093

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	G	Y	G	G	4306	3110 - 5064	172,498	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	G	Y	G	G	4669	3167 - 4751	181,303	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	G	G	G	G	5 uR/hr	N/A	1300 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
					N/A					

GE 10/3/14

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
								N/A					

GE 10/3/14

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	y	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µCi	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** Source Information:	α	Isotope	ID	Half-life	Activity	Creation Day	
** Source Information:	y	Isotope	ID	Half-life	Activity	Creation Day	

Note: _____

Reviewed By: _____ Date: 10/3/14

Performed By (Print): Blake Vollett

Signature: Blake Vollett

Date: 10-02-14 Time: 0630

T.I. Daily QC Worksheet

#956 outside QC limits - Re-checked instrument, corrected

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	876	234860	43-68	216388	10/25/14	G	Y	G	G	α 0 β 160	α 0 - 3 β 117 - 175	α 13875 β 20255	α 10102 - 15153 β 15877 - 23815
2360	911	177180	43-68	149834	1/30/15	G	Y	G	G	α 1 β 146	α 0 - 3 β 122 - 184	α 15254 β 21380	α 11239 -16859 β 16196 - 24294
2360	955	274950	43-93	293951	9/23/15	G	Y	G	G	α 2 β 180	α 0 - 3 β 171 - 257	α 12603 β 12441	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	G	Y	G	G	α 3 β ~~176~~ 178	α 0 - 3 β 173 - 259	α 11735 β 13729	α 9950 - 14926 β 10729 - 16093

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	G	Y	G	G	4495	3110 - 5064	169718	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	G	Y	G	G	4706	3167 - 4751	179985	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	G	Y	G	G	5 uR/hr	N/A	1350 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
					~	A			BV 100214	

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
										~	A	100214 BV	

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	γ	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µci	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** Source Information:	α	Isotope	ID	Half-life	Activity	Creation Day	
** Source Information:	γ	Isotope	ID	Half-life	Activity	Creation Day	

Note: _____

Reviewed By: _____ Date: 10-2-14

Performed By (Print): Chad Bradford

Signature: [signature]

Date: 10-1-14 Time: 0630

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	876	234860	43-68	216388	10/25/14	G	Y	G	G	α 3 β 141	α 0 - 3 β 94 - 142	α 13531 β 20404	α 10102 - 15153 β 15877 - 23815
2360	911	177180	43-68	149834	1/30/15	G	Y	G	G	α 0 β 141	α 0 - 3 β 97 - 145	α 14976 β 21343	α 11239 -16859 β 16196 - 24294
2360	955	274950	43-93	293951	9/23/15	G	Y	G	G	α 1 β 180	α 0 - 3 β 171 - 257	α 12606 β 12727	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	G	Y	G	G	α 1 β 207	α 0 - 3 β 173 - 259	α 11800 β 13957	α 9950 - 14926 β 10729 - 16093

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	G	G	G	G	4203	3110 - 5064	166451	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	G	G	G	G	4329	3167 - 4751	181810	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	G	G	G	G	4 uR/hr	N/A	1600 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
NUOOS										

CB 10-1

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
NUOOS													

CB 10-1

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	γ	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µCi	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** Source Information:	α	Isotope	ID	Half-life	Activity	Creation Day	
** Source Information:	γ	Isotope	ID	Half-life	Activity	Creation Day	

Note: _____

Reviewed By: [signature] Date: 10-2-14

Performed By (Print): Chad Bradford

Signature: [signature]

Date: 9-30-14 Time: 0630

T.I. Daily QC Worksheet

outside QC limits/corrected

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	876	234860	43-68	216388	10/25/14	G	Y	G	G	α 0 β 130	α 0 - 3 β 94 - 142	α 14884 β 19877	α 10102 - 15153 β 15877 - 23815
2360	911	177180	43-68	149834	1/30/15	G	Y	G	G	α 1 β 134	α 0 - 3 β 97 - 145	α 14066 β 21481	α 11239 -16859 β 16196 - 24294
2360	955	274950	43-93	293951	9/23/15	G	Y	G	G	α 0 β 177	α 0 - 3 β 171 - 257	α 12505 β 15032 CB	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	G	Y	G	G	α 0 β 191	α 0 - 3 β 173 - 259	α 11942 β 13579	α 9950 - 14926 β 10729 - 16093

B 12432

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	G	Y	G	G	4194	3110 - 5064	157911	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	G	Y	G	G	4362	3167 - 4751	169363	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	G	G	Y	G	4 uR/hr	N/A	1600 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
NUOOS										

CB 9-30

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
NUOOS													

CB 9-30

Source Information:	α	Isotope Th-230	ID F9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	γ	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µCi	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** Source Information:	α	Isotope	ID	Half-life	Activity	Creation Day	
** Source Information:	γ	Isotope	ID	Half-life	Activity	Creation Day	

Note: _____

Reviewed By: [signature] 10-2-14 JKA Date: 10-2-14

Performed By (Print): Chad Bradford

Signature: [signature]

Date: 9-29-14 (9-6-14) Time: 0630

T.I. Daily QC Worksheet

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2360	876	234860	43-68	216388	10/25/14	NUOOS				α β	α 0 - 3 β 94 - 142	α β	α 10102 - 15153 β 15877 - 23815
2360	911	177180	43-68	149834	1/30/15	NUOOS				α β	α 0 - 3 β 97 - 145	α β	α 11239 -16859 β 16196 - 24294
2360	955	274950	43-93	293951	9/23/15	G	G	G	G	α 1 β 178	α 0 - 3 β 171 - 257	α 13371 β 12,342	α 10509 - 15763 β 9878 - 14817
2360	956	274915	43-93	293982	9/23/15	G	G	G	G	α 0 β 185	α 0 - 3 β 173 - 259	α 12,083 β 13,502	α 9950 - 14926 β 10729 - 16093

CB 9-29 CB 9-29 CB 9-29 CB 9-29

Instrument Model #	Data #	Instrument Serial #	Probe	Probe Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Readings (CPM)	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Source QC Limits (CPM)
2350-1	954	228713	44-10	194980	9/22/15	G	G	G	G	4264	3110 - 5064	169216	123976 - 185964
2350-1	960	260146	44-10	186956	9/23/15	G	G	G	G	4588	3167 - 4751	178718	141224 - 211836

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	volume control	Background Reading	Background QC Limits	Source Reading (Gross)	Source QC Limits
19	959	243069	9/24/15	G	G	G	G	4 uR/hr	N/A	1600 uR/hr	1264 uR/hr 1896 uR/hr

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Battery Check	Calibration Check	Condition	Source Reading	Source Reading	Source Reading (Net)	Source QC Limits
RO-20	NUOOS						Opn:	Cld:	mR/hr	.2 - .5 mR/hr

CB 9-29

Instrument Model #	Data #	Instrument Serial #	Calibration Due Date	Calibration Check	Condition	volume control	Alpha Background	Beta background	N/A	Background QC Limits (CPM)	Instrument Readings (Net CPM)	Instrument Readings (Net CPM)	Source QC Limit (Net CPM)
3030p**	NUOOS						α	β	N/A	α N/A β N/A	α	β	α 8492-12739 β 34284-51426

CB 9-29

Source Information:	α	Isotope Th-230	ID E9-935	Half-life	Activity 0.05796 uCi	Creation Day 4-1-09	(G = Good),(N = No), (Y = Yes)(NUOOS= Not used Out of Service)
Source Information:	β	Isotope Tc-99	ID F9-869	Half-life	Activity 0.05991 uCi	Creation Day 4-1-09	
Source Information:	γ	Isotope Cs -137	ID 51178	Half-life 30 ± 0.2	Activity 8.871 µCi	Creation Day 6-1-2004	OOS = Out of service (See Notes)
** Source Information:	α	Isotope Th-230	ID CS-12	Half-life 14,000 dpm	Activity	Creation Day	
** Source Information:	γ	Isotope Cs-137	ID CS-7A	Half-life	Activity 8.0 µCi	Creation Day	

Note: _____

Reviewed By: [signature] Date: 10-2-14

APPENDIX N

RESPONSE TO COMMENTS
(on CD)

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RESPONSE TO COMMENTS ON
DRAFT FINAL STATUS SURVEY REPORT, INSTALLATION RESTORATION SITE 6
NAVAL STATION TREASURE ISLAND
SAN FRANCISCO, CALIFORNIA

Comments from Langan Treadwell Rollo/NGTS
Treasure Island Development Authority (TIDA)

Comments Dated: March 24, 2016

COMMENT	RESPONSE
Comment 1. General. Please include a summary of the conceptual model for potential radiological impacts to Site 6 to help explain the context for the work performed. In particular, please document the rationale for why certain portions of the site required removal of pavement for more thorough survey of underlying soils, while other portions of the site did not.	**Response 1.** The following new Section 4.2 will be added. Subsequent sections will be renumbered to account for the new Section 4.2. *"Section 4.2 Conceptual Site Model* *Based on the prior historical use of IR Site 6 (see Section 1.2),the area bounded by Avenues I and M and 14th Street was designated as impacted in the HRA-STM due to stockpiling of potentially radioactive soil on the existing concrete and asphalt surfaces (following removal of the aboveground buildings) associated with the former firefighting training school. After the single stockpiling event, soil was staged in specially designed roll-off bins pending shipment for off-site disposal. Since there was no historical evidence of any intrusive activities that would have impacted the soil beneath the existing ground surface, the asphalt and concrete surfaces within the fenced-in area bounded by Avenues I and M and 14th Street were not removed. The covered sumps/pits located within the former firefighting training school also were not impacted based on a review of historical site photographs that showed that the stockpiles from this single stockpiling event were located at the southwestern edge of the site closest to Avenue I, and not adjacent to the sumps/pits. Further, the metal covers used to cover the sumps/pits as a safety precaution for site workers would not have been able to withstand heavy loads or vehicular traffic.* *The Former Parking and Storage Area was designated as impacted in the HRA-STM because the open area south of Former Building 327 (Salvage Building) historically was used as a salvage yard. Since the asphalt, concrete, and fill material within the Former Parking and Storage Area were placed during the construction of Building 461 (after the historical time when it may have been impacted), these surfaces were removed in order to access the original surface of the salvage yard."*

RESPONSE TO COMMENTS ON
DRAFT FINAL STATUS SURVEY REPORT, INSTALLATION RESTORATION SITE 6
NAVAL STATION TREASURE ISLAND
SAN FRANCISCO, CALIFORNIA

Comments from Langan Treadwell Rollo/NGTS
Treasure Island Development Authority (TIDA)

Comments Dated: March 24, 2016

Comment 2. Historical Surveys. Please include some elaboration on the elevated gamma readings discussed in the first paragraph. Did the elevated readings prompt any investigation? If so, what were the conclusions?	**Response 2.** The following sentence will be added at the end of the first paragraph of Section 2.1: "*The HRA-STM recommended an FSS of the ground surface.*" The second sentence of Section 4.1 will be modified as follows: The objective of the surveys and sampling discussed in this report is to *further evaluate the locations impacted in the HRA-STM (see Section 2.1), and* demonstrate that residual radioactivity levels are less than the predetermined release criteria for the ROC *across all of IR Site 6.*
Comment 3. Sections 9.3 and 9.4, Static Alpha and Beta Measurements. Please provide an explanation for the negative results given in Tables 9-1 (alpha static results) and 9-2 (beta static results) for Survey Units (SUs) 6, 7, and 8. In some cases this is appears to be due to the numeric precision used in the calculations and in other cases it is due to the reference area background values being too high. The reference area background values for the gross alpha and gross beta count rates appear appropriate for SU6, but are too high for SU7, resulting in net values that are biased negative. For the 27 net alpha results for SU7, 20 of them are negative, 3 are zero, and 4 are positive. For the net beta results, 21 of them are negative, 1 is zero, and 5 are positive. A more appropriate background would show roughly an equal number of positive and negative results, oscillating about a median of zero. For SU8, the alpha background appears suitable, but the beta	**Response 3.** The reference area background values applied to SUs 6, 7, and 8 are representative of the material surveyed. The average net alpha cpm for SUs 6, 7, and 8 were -0.6 ± 2.1 cpm, -0.1 ± 2.2 cpm, and 0.0 ± 2.3 cpm, respectively. These values are all within one standard deviation of zero. The average net beta cpm for SUs 6, 7, and 8 were -1.5 ± 19.1 cpm, -8.8 ± 19.1 cpm, and -28.0 ± 22.8 cpm, respectively. The averages from SUs 6 and 7 are within one standard deviation of zero, and although there is a greater difference from SU 8, it is still within 1.23 standard deviations of zero. The conversion of cpm to dpm/100 cm^2 results in a numerical value that accentuates very slight increases or decreases in the alpha surface concentrations. Using a Ludlum Model 43-68, a single alpha count observed in 1 minute is approximately equal to 8 dpm/100 cm^2. A single beta count observed in 1 minute is approximately equal to 7 dpm/100 cm^2. Given the random nature of radioactive decay, the probability of the radioactive decay occurring and being able to detect the event can vary greatly. Using the standard deviations stated earlier, the alpha and beta concentrations can vary by as much as 18.4 and 159.6 dpm/100 cm^2, respectively. Although there is not an equal number of positive

Comments from Langan Treadwell Rollo/NGTS
Treasure Island Development Authority (TIDA)

Comments Dated: March 24, 2016

background is clearly too high, with all 27 net results being negative. This cannot be attributed to residual activity in the survey unit being less than that for the reference area. Rather, it only shows that the selected reference area was not representative of SU8 in terms of the local, gross beta background. Note that none of the gross beta count rates for SU8 exceeded the mean value from the reference area. The gross beta measurements from SU8 do not appear to indicate the presence of residual radioactivity, and suggest that particular batch of concrete had a beta background equal to 99 ± 11 cpm (1-sigma), 23% lower than that for the reference area. The other issue with the data in Tables 9-1 and 9-2, and the underlying data in Appendix F, is it appears that the calculations of the net dpm/100 cm^2 values were performed using a greater numeric precision than is indicated in the tabulated results, and that this is also introducing a low bias. For example, for SU8, net alpha cpm values of zero are equated to net dpm values of -3. Likewise, net cpm values of -2 are equated with different values for the corresponding net dpm (-20, -15, -7, etc.). Similar artifacts are seen in the results for the beta surveys. An example of the impact of this is seen with SU6. On a net cpm basis, the alpha results for SU6 show 9 negative results, 7 positive, and 11 zeros. But on a net dpm basis the same data are giving 17 negative results, 10 positive, and no zeros.	and negative results, the difference between the measurements collected from the survey unit and background area is not statistically different from zero. Even if the alpha and beta concentrations in the background reference area were 0.0 dpm/100cm^2, the maximum net alpha and beta concentrations for the 315 systematic and biased survey measurements acquired are less than the release criteria of 100 dpm/100 cm^2 alpha and 5,000 dpm/100 cm^2 beta. The maximum gross alpha surface concentrations on concrete measured in SUs 6, 7, and 8 are 48.94 dpm/100 cm^2, 53.02 dpm/100 cm^2, and 61.18 dpm/100 cm^2, respectively. The maximum gross beta concentrations measured in SUs 6, 7, and 8 are 1,207 dpm/100cm^2, 990.73 dpm/100 cm^2, and 1,054.65 dpm/100 cm^2, respectively. Note that the only radioactive contaminant of concern at IR Site 6 is ^{226}Ra, which is primarily an alpha emitter. The beta criterion was added to account for beta-emitting radionuclides from the radon progeny. The values used to calculate the net dpm/100 cm^2 had greater numeric precision than is indicated in the tabulated results. Due to the nature of the reporting system, the net cpm and net dpm values are rounded to the nearest whole number in Appendix F. However, this does not introduce a low bias since any calculations performed using the net cpm or dpm values were done using values with greater numeric precision.

RESPONSE TO COMMENTS ON DRAFT FINAL STATUS SURVEY REPORT, INSTALLATION RESTORATION SITE 6 NAVAL STATION TREASURE ISLAND SAN FRANCISCO, CALIFORNIA	
Comments from Langan Treadwell Rollo/NGTS Treasure Island Development Authority (TIDA) Comments Dated: March 24, 2016	
Comment 4. Section 9.6.3, Comparison with NAVSTA TI ^{226}Ra Background Concentrations. As has been seen in prior work products for the northwestern area of TI, the local background concentration for Ra-226 in that area differs from that for the previously-selected reference area (IR Site 7). This does not change the conclusion that the survey results are consistent with background, but the data further show that net values for Site 6 and the water treatment plant locations may be biased low using the background data for Site 7.	**Response 4.** Treasure Island is man-made and the material used to construct it came not only from the bay but from multiple locations in the greater San Francisco/Oakland area. Therefore, the background concentrations of the naturally occurring radionuclides are highly variable. For example, concentrations of ^{226}Ra in soil samples collected from undisturbed background locations at Treasure Island ranged from 0.34 to 0.98 pCi/g. However, the ^{226}Ra concentration in rocky soil samples collected from a TI playground ranged from 0.67 to 2.16 pCi/g. At the request of the California Department of Public Health, the release criteria for ^{226}Ra in soil and asphalt is that it is comparable to background, not equal to background. The screening criterion for ^{226}Ra in soil and asphalt is 1 picocurie per gram (pCi/g) above the NAVSTA TI background reference area of 0.68 pCi/g for ^{226}Ra.
Comment 5. Section 9.6.3, Comparison with NAVSTA TI ^{226}Ra Background Concentrations. In the last paragraph on page 9-20: "Since the net mean concentration for each concrete SU was less than zero, no additional statistical analysis is required." Please reconsider or revise this statement in light of the issues with the net values discussed in the comment above. For the beta results for survey unit 8 in particular, the primary thing the negative results tell you is that the background used was too high.	**Response 5.** Please see response to comment #3. The reference area background values applied to SUs 6, 7, and 8 are representative of the material surveyed.

RESPONSE TO COMMENTS ON DRAFT FINAL STATUS SURVEY REPORT, INSTALLATION RESTORATION SITE 6 NAVAL STATION TREASURE ISLAND SAN FRANCISCO, CALIFORNIA	
Comments from Langan Treadwell Rollo/NGTS Treasure Island Development Authority (TIDA) Comments Dated: March 24, 2016	
Comment 6. Section 9.6.3, Comparison with NAVSTA TI ^{226}Ra Background Concentrations. It might be worth pointing out the rather conservative approach of comparing each, individual 100 cm^2 result to the Reg. Guide 1.86 limits rather than averaging over a square meter as the guidance intends. Not averaging over a square meter effectively makes the applicable limits conservative by a factor of three.	**Response 6.** While comparing each 100 cm^2 to Regulatory Guide 1.86 is considerably more conservative than the guide intended, it is the agreed upon criteria listed in the approved Final Task-Specific Plan.
Comment 7. Appendices F and G. Graphical presentation of these data would be far more informative than page after page of tables.	**Response 7.** This is the agreed upon format between the Navy and regulators. Format changes may be discussed for future documents.

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RESPONSE TO COMMENTS ON DRAFT FINAL STATUS SURVEY REPORT, INSTALLATION RESTORATION SITE 6 NAVAL STATION TREASURE ISLAND SAN FRANCISCO, CALIFORNIA	
Comments from Dale Smith Naval Station Treasure Island Restoration Advisory Board Comments Dated: March 28, 2016	
COMMENT	**RESPONSE**
Comment 1. General. In several places the term class I survey unit is used. I am not familiar with that term. Could you please define it?	**Response 1.** The Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) divides radiologically impacted areas (surveys units) into three classifications: Class I, II or III. Class I is used to designate a survey unit with a potential for radiological contamination and meets the following criteria: (1) impacted due to human activities at the site; (2) potential for delivering a dose above the release criterion; (3) potential for small areas of elevated activity*;* and (4) insufficient evidence to support reclassification as Class 2 or Class 3 survey unit (NUREG-1575, DoD et al. 2000).
Comment 2. General. An on-site lab was used for some of the sample analysis. Did the results produce certified results or was it used for a first pass assessment?	**Response 2.** The on-site laboratory, operated by Curtis & Tompkins, Ltd., is a Department of Defense Environmental Laboratory Accredited Program laboratory that produced both screening and definitive results. The last two sentences of Section 6.7.1 state the following: "The Cutis & Tompkins, Ltd. on-site laboratory was used for gamma spectroscopy screening analysis to expedite turnaround times to guide investigation, characterization, and remediation activities. Once the FSS analytical results were determined to be below the screening criteria at the on-site laboratory, the samples were submitted to either the TestAmerica-St. Louis or Curtis & Tompkins, Ltd. laboratory for definitive analysis."

RESPONSE TO COMMENTS ON DRAFT FINAL STATUS SURVEY REPORT, INSTALLATION RESTORATION SITE 6 NAVAL STATION TREASURE ISLAND SAN FRANCISCO, CALIFORNIA	
Comments from Dale Smith Naval Station Treasure Island Restoration Advisory Board Comments Dated: March 28, 2016	
Comment 3. Sections 6 to 8. Section 6-8 contains a slightly obscure, turgid discussion that seemed to say the results were unverifiable. The intent appears to be to explain poor quality readings and, as a result, an inability to determine if there was radiological levels of concern. Did the equipment used have lesser sensitivity leading to the poor results?	**Response 3.** Sections 6 through 8 are included to present the instrumentation used, detection capabilities, and surveys performed were of high quality and more than sufficient to detect any activity that would result in radionuclide concentrations of concern above the release criteria. Sections 6 through 8 provide a very high confidence level that minimum detectable concentrations (MDCs) for the survey instruments and methods used at IR Site 6 are significantly less than the ^{226}Ra release criteria. The equations in Section 7 used to calculate the survey instrument MDC are from Chapter 6 of the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). MARSSIM was approved by the EPA, NRC, DOE, and DoD for designing and implementing site surveys, sampling protocols and calculating MDCs. The calculated alpha scan MDC was 36.5 dpm/100 cm^2 spread uniformly over the area of the probe. The alpha static survey MDC was 57.9 dpm/100 cm^2. The alpha scan and static MDCs are significantly less than the ^{226}Ra release criterion of 100 dpm/100 cm^2.
Comment 4. Section 9. In Section 9, it would be possible to fit two tables on one page if the tables were resized slightly.	**Response 4.** The tables are sized so the font is easily readable. Decreasing their size, so that two could fit on one page, would likely decrease that readability.

RESPONSE TO COMMENTS ON DRAFT FINAL STATUS SURVEY REPORT, INSTALLATION RESTORATION SITE 6 NAVAL STATION TREASURE ISLAND SAN FRANCISCO, CALIFORNIA	
Comments from Dale Smith Naval Station Treasure Island Restoration Advisory Board Comments Dated: March 28, 2016	
Comment 5. General. The RAB had asked several years ago for an explanation of the relationship of dose to risk. At the time the Navy representative didn't have an explanation. But this document states that risk can be determined from dose.	**Response 5.** The EPA established in OSWER 9285.6-20 (2014) a rule of thumb of 2.5×10^{-5} excess lifetime cancer risk (ELCR)/mrem. The calculated ELCR is the sum of the risks due to the dose to each individual organ. The RESRAD computer code calculates the ELCR by applying the EPA risk coefficients in Federal Guidance Report #13 to the exposure rate (for the external radiation pathways) and the total intake amount (for internal exposure pathways). The EPA risk coefficients are organ-specific best-estimate values of the age-averaged lifetime excess cancer incidence risk per unit of exposure to radiation or intake of radionuclides. The methodology used in the RESRAD code for calculating the ELCR follows the EPA risk assessment guidance.
Comment 6. General. Although the results were below release criteria and EPA RMLs, they were above background, indicating the Navy was the source of contamination. It would be preferable to clean up the site to background and not a higher level.	**Response 6.** Although CDPH does not currently have an established release criteria for Ra-226, the Navy has agreed that the survey results be compared to background levels. As discussed in Section 9.6.3, the remaining concentrations are within the expected range of the NAVSTA TI background concentrations and, therefore, have been compared to background.

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Comments from Sheetal Singh, PhD
Senior Health Physicist
CDPH Environmental Management Branch

Comments Dated: April 15, 2016

SPECIFIC COMMENT	RESPONSE
Comment 1. Section 1.3, Page 1-2, Paragraph 1, Sentence 7. Section 1.3 REPORT OBJECTIVE, page 1-2, paragraph one, sentence seven, "Appendix L provides information regarding the construction of Building 461 and the adjacent sidewalk and enclosed stairwell on the southeast side of Building 461." It might assist the reader if it were noted that Building 461 was not included in IR Site 6, but that the adjacent sidewalk and enclosed stairwell are in included in IR Site 6.	**Response 1.** The following was added after the 3rd sentence in Section 1.1: *"Building 461 is not part of IR Site 6, but the adjacent sidewalk and enclosed stairwell on the southeast side of Building 461 are included."*
Comment 2. Figure 1-1, Page 1-3. Figure 1-1, IR SITE 6 SITE PLAN VIEW, page 1-3, LEGEND, "RCA-Radiologically Controlled Area". Are there any RCA Areas in IR Site 6? Please explain.	**Response 2.** As of November 2015, there are no RCAs within IR Site 6. Figure 1-1 shows the site conditions prior to the survey activities to achieve unrestricted release of the site. Prior to the survey activities, only the fenced in area bounded by Avenues I and M and 14th Street was an RCA. Figure 4-1 shows the conditions of IR Site 6 after down posting, in which all RCAs for the site have been removed. The last sentence of Section 1.1 will be replaced with the following: *" The site, prior to performance of the field activities discussed herein was comprised of unpaved area (33 percent), asphalt (25 percent), and concrete (42 percent), as shown in Figure 1-1. Figure 1-1 depicts the site conditions prior to the start of the field activities discussed herein."*
Comment 3. Table 2-1, Page 2-2. TABLE 2-1, IR SITE 6 SURVEY UNITS, page 2-2. It would assist the reader if this table were expanded to include which type of survey; Gamma Direct, Alpha/Beta and /or Swipe Analysis was performed at each SU.	**Response 3.** Table 2-1 was revised as requested.

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Comment 4. Table 3-1, Page 3-2. TABLE 3-1 RELEASE CRITERIA FOR RADIONUCLIDES OF CONCERN, page 3-2, note, "a", it might assist the reader if the former Naval Station Treasure Island (NAVSTI) background reference area of 0.688pCi/g for Ra-226 was included in the note, "a".	**Response 4.** The following sentence was added to footnote a: *"The ^{226}Ra concentration in background for IR Site 6 is 0.688 pCi/g."*
Comment 5. Section 3.4, Page 3-4, Paragraph 1, Sentence 1. Section 3.4 INVESTIGATION LEVELS, page 3-4, paragraph one, sentence one, "Investigation levels are specific levels of radioactivity used to indicate when additional investigation may be necessary". Please include the investigation levels for each instrument used, or reference where the investigation levels may be found in the document.	**Response 5.** The investigation levels for alpha and beta surveys are discussed in Section 3.4.1. The following will be added as the second to the last sentence in Section 3.4.1: *"Instrument count rates equivalent to the investigation level are provided in Appendix F."* The investigation levels for gamma surveys are discussed in Section 3.4.2. The following will be added as the second to the last sentence in Section 3.4.2: *"Instrument count rates equivalent to the investigation level are provided in Appendix G."*
Comment 6. Section 3.4.1, Page 3-2. Section 3.4.1 Investigation Levels for Alpha and Beta Radiation Surveys, page 3-2, paragraph one, sentence four, "The investigation level for beta surveys was 4,500 dpm/100 cm^2." Please explain the origin of this investigation level as it appears to contradict Appendix F, Survey Unit Data Packages, page 12, Alpha/Beta Instrument and Reference Area Background Report, which suggests the Beta Investigation Level (cpm) is drawn from Reference Area Background, Identification # 998-96F2A. Please explain.	**Response 6.** Due to the random nature of radioactive decay, the probability of the radioactive decay occurring and being able to detect the event can vary greatly. The conservative investigation level of 4,500 dpm/100 cm^2 was used to ensure that any concentration identified near the release criteria did not actually exceed the criteria upon collecting additional measurements. The values listed on page 12 of Survey Unit 6 in Appendix F are the instrument count rates equivalent to the investigation level. Beta count rates greater than the value listed would be greater than 4,500 dpm/100 cm^2. It is necessary to take into account the reference area since alpha and beta concentrations can be detected in backgrounds.

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Comment 7. Section 3.4.1, Page 3-3, Paragraph 1, Sentence 1. Section 3.4.2 Investigation Levels for Gamma Radiation Surveys, page 3-3, paragraph one, sentence one, "The investigation level for gamma radiation surveys was defined as the SU mean plus three standard deviations of the gamma radiation survey count rate in the SU." It would greatly assist the reader if the when mean and standard deviation of each SU data set were calculated, z-scores were then computed, and color-coded maps were created with three color divisions used to represent various ranges of z-score values for each of the SUs.	**Response 7.** The maximum, standard deviation, mean, and investigation level for each survey unit are provided in Appendix G. The inclusion of color-coded figures showing the z-score values will be considered for future documents.
Comment 8. Figure 4-1, Page 4-3. FIGURE 4-1 IR SITE 6 CLASS 1 SURVEY UNIT ARRANGEMENT, page 4-3, please include the location of radiological object (IRS6-001). Please identify the location of SU 15. Please include on this, or another figure, the location of the decon pad. Please explain if the noted, "SUMPS/PITS", were radiologically investigated.	**Response 8.** The figure showing the location of the radiological object, IRS6-001, can be found in Appendix D. Please see Note 3 on Figure 4-1. The location of Survey Unit 15 was on Survey Unit 7 and was later removed and staged on Survey Unit 1. Please see Figure 4-1. The approximate location of the former decontamination pad was on Survey Unit 6. This pad was deconstructed and relocated to accommodate survey activities. The sumps/pits identified in Figure 4-1 were not surveyed since the site conceptual model identified only possible surface contamination from stockpiling material directly on the ground surface. The sumps/pits were covered with metal covers as a safety precaution for site workers. These metal covers would not have been able to withstand heavy loads or vehicular traffic. Historical site photographs show that the stockpiles were located at the southwestern edge of the site closest to Avenue I and not adjacent to the sumps/pits. See response to TIDA Comment 1 for revisions to text.

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Comment 9. Section 5.4.1, Page 5-4, Paragraph 1, Sentence 3. Section 5.4.1 Static Measurement Surveys, page 5-4, paragraph one, sentence three, "A review of the soil and asphalt data showed that if the corresponding gamma spectroscopy analytical results did not exceed the screening criterion, the elevated static gamma measurements were the result of the geometry of the material or the relatively elevated concentration of naturally occurring radionuclides, including the potassium-40 (40K) and the thorium-232 (232Th) series (as evidenced by actinium-228)." Were there any instances where the corresponding gamma spectroscopy analytical results did exceed the screening criterion? Please explain the use of the term, "if".	**Response 9.** None of the gamma spectroscopy results had ^{226}Ra concentrations above the screening criterion of 1.688 pCi/g. For clarification, the term "if" means an evaluation was performed to determine the source of increased survey count rates if the gamma spectroscopy results proves that the ^{226}Ra concentration is not different from background. The concentrations of naturally occurring ^{40}K and ^{228}Ac were often found to be higher than their average concentrations in background soil, thereby increasing the survey count rate. In addition, higher count rates occur when surveying in the corners and lower edges of low spots because the detector is receiving gammas from more than one surface.
Comment 10. Section 6.3, Page 6-1, Paragraph 2, Sentence 2. Section 6.3 INSTRUMENT OPERATIONAL CHECKS, page 6-1, paragraph two, sentence two, "These procedures included functional operational checks, routine maintenance, calibration procedures, and operational instructions." Please include in the Final Status Survey Report (FSSR) logs of the Quality Assurance (QA) and Quality Control (QC) records, Certificates of Calibrations for the radiological instruments and sources, along with the chi-squared calculations when appropriate; for the radiological instruments used in this document. This request was made in the past; please see California Department of Public Health Memorandum to Remedious Sunga dated February 7, 2014; comment 16 of review comments for *Draft Characterization and Remedial Survey Work Plan,* Naval Station Treasure Island, San Francisco, CA.	**Response 10.** The following will be added after the last sentence of the second paragraph in Section 6.3: "*The functional operational checks, routine maintenance records, and chi square calculations are included in Appendix M. The instrument calibrations were performed by the instrument manufacturer or vendor and the certificates are provided in Appendix B.*"

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Comment 11. Section 7.4, Page 7-6, Paragraph 4, Sentence 1. Section 7.4 SCAN MDC FOR ALPHA, page 7-6, paragraph four, sentence one, "Using Equation 7-4 from the Radiological Management Plan (TtEC 2014b), the probability of detecting 300 dpm alpha was 87.49 percent at a scan speed of approximately 4 cm/s. This activity is equivalent to an average of 36.54 dpm/100 cm^2 for the area of the detector." CDPH-EMB staff believes that Equation 7.4, which is used to determine the probability of seeing two counts of Alpha using a certain instrument/detector combination, is more akin to the process of evaluating for Small Areas of Elevated Activity, or DCGLEMC. Staff is not yet persuaded that applying a ratio of counts to detector area renders a reliable average cpm/100 cm^2 conversion factor in those instances when the probability, $P(n \geq 2)$, is less than 87.49 percent. Please explain.	**Response 11.** Equation 7.4, which is the same as MARSSIM Equation 6-14, is used to determine the probability of detecting two or more counts for the minimum detectable alpha activity. Since the hot spot size for surface contamination on building surfaces is 100 cm^2, this allows for the calculation of the alpha scan MDC in units of dpm/100 cm^2. The general assumption is that the concentrations of the radionuclides in a source are homogeneous. If the activity of 300 dpm were localized to an area of 100 cm^2, the resultant instrumental MDCs would be found to be the same as if the surface contamination were distributed evenly across the area of the detector for an average of 36.54 dpm/100 cm^2. According to MARSSIM Section 5.5.2.6, investigation levels for scanning surveys are used to identify areas of elevated activity above the $DCGL_{EMC}$. The $DCGL_{EMC}$ is the small area criteria characterized by the degree to which any single localized area can be elevated above the average, assuming the average is the $DCGL_W$, and not invalidate the homogeneous assumption. Given the random nature of radioactive decay, the probability of the radioactive decay occurring and being able to detect the event can vary greatly. Scanning for alpha emitters, as compared to beta and gamma emitters, are especially difficult since the background response of most alpha detectors is very close to zero. A counting period long enough to establish that a single count indicates an elevated contamination level would be prohibitively inefficient. According to MARSSIM, the alpha scan process consists of two stages: continuous monitoring and stationary sampling or pausing. During the continuous monitoring stage, the surveyor listens to the number of counts per time interval set on the detector. Section 6.7.2.2 of MARSSIM states: "Since the time a contaminated area is under the probe varies and the background count

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	rate of some alpha instruments is less than 1 cpm, it is not practical to determine a fixed MDC for scanning. Instead, it is more useful to determine the probability of detecting an area of contamination at a predetermined DCGL for given scan rates." If alpha backgrounds are on the order of 0-3 counts per minute (cpm), a single count gives the surveyor sufficient cause to stop and investigate further by pausing for an additional number of seconds. For background count rates on the order of 5-10 cpm, a single count should not cause a surveyor to investigate further, primarily because there would be an inordinate amount of false positives. For these types of instruments, the surveyor should expect at least two counts per time interval while passing over the source area before stopping for further investigation. The probability of detecting given levels of alpha surface contamination can be calculated by use of Poisson summation statistics. MARSSIM Equation 6-14 is used to calculate the probability of getting 2 or more counts during the time interval. The probability of 87.49% is consistent with values listed in Table 6.8 of MARSSIM. This probability is greater than the values listed in the "Minimum Detectable Activities of Contamination Control Survey Equipment" (Goles et al. 1991). Goles reported a detection probability of 67% for 300 dpm with a gas proportional detector under standard survey conditions.
Comment 12. Section 8.3.1, Page 8-2, Paragraph 1, Sentence 1. Section 8.3.1 Step One -State the Problem, page 8-2, paragraph one, sentence one, "Do the average concentrations of the ROCs in the SU exceed the release criteria?" There is only one ROC at IR SITE 6, which is Ra-226. Please explain reference to "ROCs" in the statement.	**Response 12.** The text in Section 8.3.1 has been revised to state the following: "Do*es* the average concentration of the ROC in the SU exceed the release *criterion*?"

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Comment 14. Section 8.3.2, Paragraph 1, Sentence 1. Section 8.3.2 Step Two - Identify the Goal of the Study, paragraph one, sentence one, " Collect a sufficient amount of quality data to defend, at the 90 percent confidence level, the alternative hypothesis that the unity rule for the ROC is not violated for the surface of the SU." There is only one ROC at IR SITE 6, which is Ra-226. There is no need for the unity rule. Please explain.	**Response 14.** The text in Section 8.3.2 has been revised to state the following: "Collect a sufficient amount of quality data to defend, at the 90 percent confidence level, the alternative hypothesis that the *average concentration* for the ROC *does* not *exceed* the *release criterion for* the surface of the SU.
Comment 15. Section 8.4, Page 8-3, Paragraph 1, Sentence 1. Section 8.4 SURFACE ACTIVITY MEASUREMENTS, page 8-3, paragraph one, sentence one, "Surveillance measurements were used to quantify surface activity levels mainly on remaining surfaces." It would assist the reader if it were made clear that the following discussion including Equation 7-1a; applied to static measurements only, if that is the case.	**Response 15.** The second paragraph of Section 8.4 has been revised to state the following: "Equation 7-1a from the Radiological Management Plan (TtEC 2014b) was used to calculate the surface activity in units of dpm per 100 cm^2 *for static measurements*:"
Comment 16. Section 9.1.2, Page 9-1, Paragraph 2, Sentence 2. Section 9.1.2 Beta Scan Measurement Results, page 9-1, paragraph two, sentence two, "The data were then evaluated to determine whether any measurements exceeded the investigation level (90 percent of the screening criteria)." Please explain the origin of this investigation level as it appears to contradict Appendix F, Survey Unit Data Packages, page 12, Alpha/Beta Instrument and Reference Area Background Report, which suggests the Beta Investigation Level (cpm) is drawn from Reference Area Background, Identification # 998-96F2A. Please explain for each of the SUs undergoing a Beta Scan.	**Response 16.** Please see the response to Comment 6 above.

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Comment 17. Section 9.6.3, Page 9-19. Section 9.6.3 Comparison with NAVSTA Tl 226Ra Background Concentrations, page 9-19. It would assist the reader if data analysis included the calculation and comparison of statistical quantities; visual inspection of data distributions using cumulative frequency diagrams and frequency plots to identify data distribution trends and potential outliers. CDPH-EMB appreciates the application of these analytical tools.	**Response 17.** In the case of IR Site 6, the mean ^{226}Ra concentration of 0.76 pCi/g in SU 1 is 45% of the release criterion. The maximum ^{226}Ra concentration, 1.03 pCi/g, is only 61.3% of the release criterion. Table 8.2 of MARSSIM states that if the difference between the maximum ROC concentration in the SU and the minimum ROC concentration in the background reference area is less than the release criterion, no statistical analysis is required.
Comment 18. Appendix F. APPENDIX F SURVEY UNIT DATA PACKAGES. This appendix's layout is very confusing. It would greatly assist the reader if it were prefaced with the updated TABLE 2-1, IR SITE 6 SURVEY UNITS, which would include the materials and surveys for each SU.	**Response 18.** Table 2-1 has been revised to include the surveys performed for each survey unit.

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Additional Comments from Matt Wright CDPH Environmental Management Branch Comments Dated: July 25, 2016	
Comment 5 from CDPH Requested that the investigation levels be provided in tables.	**Additional Response to Comment 5.** The following will be added to the end of Section 3.4.1: *A summary of the investigation levels is provided in Table 3-2."* The following will be added to the end of Section 3.4.2: *"A summary of the investigation levels is provided in Table 3-3."*
Comment 6 from CDPH Requested clarification about the derivation of the 4,500 dpm number as well request discussion of beta counts similar to discussion about alpha counts.	**Additional Response to Comment 6.** For example, if instrument 998 identified 762 net counts per minute (cpm) for beta, that would be equivalent to 4,500 dpm/100 cm^2. To convert from cpm to dpm, cpm is divided by the instrument efficiency, surface efficiency, and probe correction factor. The following will be added after the second sentence of Section 3.4.1: "*Biased measurements were collected at locations exceeding 100 dpm/100 cm^2 for alpha surveys. The investigation level for beta surveys was 4,500 dpm/100 cm^2."*
Comment 7 from CDPH Requested the inclusion of color coded figures showing the z-score values.	**Additional Response to Comment 7.** Color-coded figures showing the z-score values are provided in Appendix G.

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Comment 8 from CDPH SU 15 is a little different than the rest; it would greatly assist the reader if there was a brief description of the unique history in the text and in the note #3, Figure 4-1, "IR Site 6 Survey Unit Arrangement".	**Additional Response to Comment 8.** Figure 4-1 was revised with the following notes: *1. Soil from SU 12, was removed from areas of concrete during site preparation for surveying. This soil was placed on SU 07 during surveys then eventually staged within SU 01.* *3. Soil from SU 15, was removed from areas of concrete during site preparation for surveying. This soil was placed on SU 07 during surveys then staged within SU 01.*
Comment 8 from CDPH … an undesignated concrete patch in the extreme north west corner, next to SU 14 and another concrete patch inside SU 06; are these also part of SU 08?	**Response to Additional Comment 8.** The undesignated concrete patch in SU 6 is part of soil SU 12. The concrete patch just above SU 14 is part of SU 7. Figure 4-1 was modified accordingly. The undesignated area in the far northwest corner is an area of grown trees and vegetation. As the conceptual site model for the LLRW area was stockpiling of soil, this area was not surveyed as these trees were present prior to the stockpiling event.